

Rec'd PCT/PTO 16 DEC 2004

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

10/518958

(19) World Intellectual Property Organization  
International Bureau



(43) International Publication Date  
24 December 2003 (24.12.2003)

PCT

(10) International Publication Number  
WO 03/106253 A1

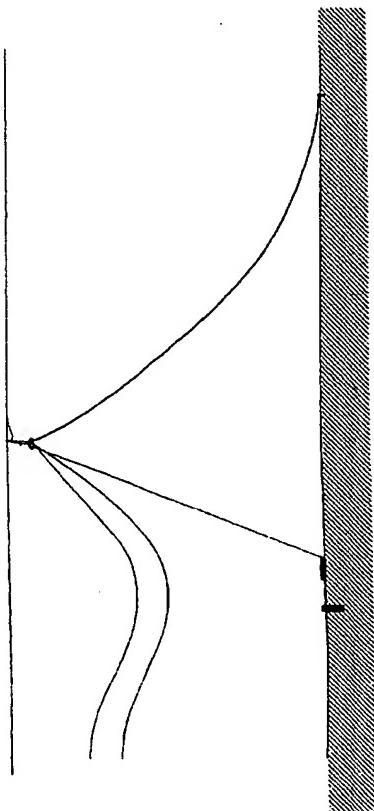
- (51) International Patent Classification<sup>7</sup>: B63B 22/04, (74) Agent: TANDBERGS PATENTKONTOR AS; Boks 21/50 7085, N-0306 Oslo (NO).
- (21) International Application Number: PCT/NO03/00193 (81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (22) International Filing Date: 12 June 2003 (12.06.2003) (84) Designated States (*regional*): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).
- (25) Filing Language: English (26) Publication Language: English
- (30) Priority Data: 20022892 17 June 2002 (17.06.2002) NO
- (71) Applicant (*for all designated States except US*): ADVANCED PRODUCTION AND LOADING AS [NO/NO]; Vikaveien 85, N-4816 Kolbjørnsvik (NO).
- (72) Inventor; and (75) Inventor/Applicant (*for US only*): BECH, Arild [NO/NO]; Brinken 1, N-4843 Arendal (NO).

[Continued on next page]

(54) Title: ANCHORING SYSTEM



WO 03/106253 A1



(57) Abstract: Anchoring system to hold a vessel anchored during loading or unloading, which vessel can be connected to or from the anchoring system in a similar way under all operating conditions without adjustments in the anchoring system, which anchoring system is comprising one or more anchors, from each anchor an anchor line is arranged extending upwards through the sea to a subsea buoy with swivel, which buoy has connected thereto and suspended the anchor lines and at least one pipeline for loading or unloading up through the sea, from which subsea buoy at least one line is arranged to a surface buoy, and further, at least one anchoring line and at least one pipeline for loading or unloading, arranged to the vessel either directly from the subsea buoy or via the surface buoy to the vessel, distinguished in that in each anchor line slack is arranged, and on one or more anchor lines one or more clump weights are arranged, and the buoyancy of the subsea buoy and the buoyancy of the surface buoy is adapted such that by damage on the surface buoy or the line therefrom to the subsea buoy will the subsea buoy and thereto suspended equipment not be lowered further down vertically than that one or more of the clump weights are landing on the seabed, while during loading or unloading will at least one of the clump weights on each anchor line be located on or just above the seabed, and for all types of load in the loading and unloading pipelines and with all anchor lines connected, the subsea buoy can by ballast adjustment be brought up to the surface.

BEST AVAILABLE COPY